

CLAIMS

1. A method for increasing the nutritive value of plant or portion thereof comprising without significantly altering the natural physiology of said plant or portion thereof, comprising neutralizing the activity or action of at least one plant proteolysis degradation on at least one endogenous proteins with an inhibitor released from said plant or plant extract at the time plant cells thereof are disrupted..
2. The method of claim 1, wherein said portion is an extract or a concentrate of said plant.
3. The method of claim 1, wherein said neutralizing is partial or total.
4. The method of claim 1, wherein said plant cells are disrupted during processing of said plant or plant portion during preparation of an extract or a concentrate, or during swallowing or digestion of said plant or plant portion.
5. The method of claim 1, wherein said neutralization of proteolysis degradation is obtained by genetically altering said plant to cause condition for inhibiting totally or partially at least one proteolytic reaction specifically involved in the degradation of the endogenous proteins when cell disruption takes place.
6. The method of claim 5, wherein said proteolytic reaction is performed by a protease.
7. The method of claim 6, wherein said plant protease is inhibited when said cell disruption takes place during said processing of said plant or plant extract but not during growth of the plant in order to preserve the activity of said plant protease during the growth and natural physiology of the plant.

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8. The method of claim 1, which increases stability of said endogenous proteins during swallowing or digestion process in a human or an animal for a predetermined period of time.
9. The method of claim 1, wherein said neutralization is performed on a protease selected from the group consisting of cysteine proteases, aspartate proteases, metallo proteases, serine proteases, threonine proteases, and multispecific, broad range proteases.
10. The method of claim 1, wherein said plant is transformed with an expression cassette comprising a promoter operably linked with a factor or peptide causing said neutralization of proteolytic degradation..
11. The method of claim 10, comprising linking said factor to a leader peptide, a signal peptide or an anchorage peptide or a protein to lead or anchor said protease inhibitor to a cell part or extracellular compartment in manner to protect said endogenous proteins from the activity of a plant protease during the processing of said plant extracts.
12. The method of claim 10, wherein said factor is a protease inhibitor.
13. The method of claim 11, wherein the cell part or extracellular compartment is selected so as to protect said endogenous proteins from the activity of a plant protease at the time of cell disruption during the processing of said plant extracts but not during the growth of the plant in order to preserve the activity of said plant protease during the growth of the plant.
14. The method of claim 13, wherein said cell part is an organelle selected from the group consisting of a mitochondria, a chloroplast, a storage vacuole, an endoplasmic reticulum, and a cytosol.

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15. The method of claim 12, wherein said protease inhibitor is selected from the group consisting of an antibody or a fragment thereof, a sens-mRNA or anti-sens mRNA, an inhibitor of transcription or a regulator thereof, an inhibitor of translation or a regulator thereof, an inhibitor of leading or signal peptide, an inhibitor of metabolic acquisition of activity of a protease, a protease-specific protease, and an affinity peptide protease leading to segregation to said protease into an organelle or a cell compartment.

16. The method of claim 1, wherein said plant is an alfalfa or a potato.

17. The method of claim 10, wherein said cassette comprises an expression vector in which a coding sequence is regulated by a constitutive, a bipolar, or an inducible promoter.

18. The method of claim 17, wherein said inducible promoter is a tissue-specific promoter, a time-specific promoter, or a wound inducible promoter.